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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,520	07/25/2003	Hsiang-Yun Wang	WANG3189/EM	1123

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EXAMINER

SOLAK, TIMOTHY P

ART UNIT	PAPER NUMBER
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3746

DATE MAILED: 09/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/626,520	Applicant(s) WANG, HSIANG-YUN	
	Examiner Timothy P. Solak	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Drawings***

Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). See disclosure page 1, lines 9-10.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "open end 22" (page 3, line 12).

Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities:

- The Examiner has notes a plurality of typographical omissions throughout the disclosure. For example:

- ✓ "pr vided" on page 1, line 31
- ✓ "opp site" on page 2, line 11
- ✓ "c mprises" on page 3, line 31

- ✓ "inv nti n" on page 5, line 1
- ✓ "h le" in Claim 1, line 12

It is unclear, however, as to whether these omissions are in fact errors in the disclosure or errors caused by electronic transformation and/or transmittal of the document.

Applicants should review their submission of the disclosure for the above-cited errors. If applicants believe the omissions were caused by electronic transformation and/or transmittal, then applicants may wish to consider mailing in a substitute specification in response to this action.

- Recitation of "through hole 531, 32." on page 3, line 27, would be clearer if written as --through hole 531, 532.--. This error is not believed to be associated with the above-mentioned omissions.
- The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Claim 1, recites the limitation "a closed end being provided with an axial hole" in lines 1-2. If the end has a hole, how can it be closed? The disclosure fails to define the term "closed". Applicants are using the term "closed" in a manner diverging from its excepted meaning, i.e. without passage. To overcome this rejection applicants need to *clearly redefine* the term "closed" or provide further explanation of its intended meaning.

Appropriate correction is required.

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: --Housing for a Reciprocating Electromagnetic Pump--.

Claim Objections

Claims 1-3 are objected to because of the following informalities:

- * Recitation of the term "closed end being provide with an axial hole" in Claim 1, lines 1-2, is not clear in context. How can a closed end have an axial hole? Further definition of the term "closed end" is required (see objection to the Specification, above).
- * Recitation of "h le" in Claim 1, line 12, would be clearer if written as --hole--.
- * Recitation of "fitted over other end" in Claim 1, line 14, would be clearer if written as --fitted over the other end--. The "one end" of the cylinder has been previously recited. A cylinder has only two ends, therefore recitation of "the other end" has antecedent basis.
- * Recitation of "with seat" in Claim 2, lines 2-3, would be clearer if written as --with a seat--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Farkos (3,791,770), in view of Sonzeng (4,989,760). Farkos teaches a cylinder 1 having a first end (side of plug 40) provided with an axial hole 42, a piston chamber 5 and an open end 30 being provided with a connection pipe 29. Farkos discloses a magnetic piston 19/20 disposed slidably in said piston chamber and provided with a first end face (side of piston in chamber 26) and a second end face (side piston in chamber 27) opposite the first end face. Farkos further discloses a first induction coil 3 fitted over one end of said cylinder and provided with a first excitation hole extending along an axial direction thereof (not labeled, but clearly seen in Figure 1 surrounding the cylinder) and a first excitation frame 11, whereby said first excitation frame and said first excitation hole are respectively provided in a corresponding side (left side of Figure 1) with a through hole. Farkos further discloses a second induction coil 4 fitted over the other end of said cylinder and provided with a second excitation hole extending along an axial direction thereof (not labeled, but clearly seen in Figure 1 surrounding the cylinder) and a second excitation frame 12, whereby said second excitation frame and said second excitation hole are respectively provided in a corresponding side (right side of Figure 1) with a through hole. Although Farkos teaches most of the limitations of the claim, including a reciprocating piston inside a cylinder having a first end provided with an axial hole and another open end equipped with a pipe, he does not disclose a cylinder having a "closed end". Sonzeng, disclosing a pump having a reciprocating piston 10 inside a cylinder 2, specifically teaches the cylinder to have a "closed end" (see top of Figure 1)

having an axial hole 18 and a open end (see bottom of Figure 1) having a connection pipe 3.

Sonzeng teaches the "closed end" advantageously increased the pumping speed (column 2, lines 53-56). Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have used the "closed end" taught by Sonzeng, in the pump disclosed by Farkos, to have advantageously increased the pumping speed.

With respect the limitations drawn toward a "power source wire", the prior art teaches the electric coils and energizing of said coils (column 3, lines 62-65). A "power source wire" is considered an inherent feature of any electric coil and without a "power source wire" the coil cannot function. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have used a first and second power source wire, in the pump disclosed by Farkos, to have advantageously enabled the unit.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Farkos, in view of Sonzeng (both previously mentioned), in further view of Masaka (4,306,842). Although Farkos teaches most of the limitations of the claim, including a U-shaped housing 18, he does not disclose a U-shaped housing having a seat at both ends to facilitate the joining of the housing with ends of the cylinder. Masaka, disclosing a electromagnetic pump having a piston and cylinder, specifically teach a U-shaped housing 5 having seats 1/2 at both ends to facilitate the joining of the housing with a first and second end of a cylinder 22 (see Figures 2 and 3). Masaka teaches the U-shaped housing equipped with seats advantageously insulated and shielded the unit (column 2, lines 36-40). Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have used the U-shaped housing and seats taught by

Masaka, in the pump disclosed by Farkos, to have advantageously shield and/or insulated the unit.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Farkos, in view of Sonzeng (both previously mentioned), in further view of Bell (0, 752,643). Although Farkos teaches most of the limitations of the claim, including a cylinder having an open end 30 being provide with a connection pipe 29, wherein an outer wall of the connecting pipe comes in contact with the cylinder (see 30 is Figure 1); he does not disclose a connection pipe having an annular groove and washer. Annular grooves equipped with o-rings are well known, in the art of pump fabrication, as obvious ways of fitting pipes without leakage. Bell, disclosing a reciprocating electromagnetic pump, specifically teaches a connecting pipe 2 connected with washers 3 inside annular grooves (see Figure 2). Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have used the annular grooves and washers taught by Bell, in the pump disclosed by Farkos, to have advantageously prevented leakage.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Holst (2,701,331) teaches a magnetic piston pump.
- Haneda et al. (4,494,098) teach two coils and frame (see Figure 5b).
- Hirabayashi et al. (5,472,323) teach a magnetic pump having two coils and an open and closed end.

- Morgan (3,134,938) teaches a magnetic pump having two coils and a cylinder with two closed ends.
- Massie (3,754,154) teaches a pump having a magnetic piston, two coils and connecting pipes with washers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy P. Solak whose telephone number is 703-308-6197. The examiner can normally be reached on Monday through Friday from 10am to 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on 703-308-2772. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Timothy P. Solak
Examiner
Art Unit 3746
September 17, 2004